

## PATENT COOPERATION TREATY

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## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference FGJB/JLB/40891	<b>FOR FURTHER ACTION</b>		See Form PCT/PEA/416
International application No. PCT/GB2004/002610	International filing date (day/month/year) 18.06.2004	Priority date (day/month/year) 23.06.2003	
International Patent Classification (IPC) or national classification and IPC B64D11/00, B64D11/06			
Applicant VIRGIN ATLANTIC AIRWAYS LIMITED ET AL			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 4 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau a total of 4 sheets, as follows:</p> <p style="margin-left: 40px;"><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p style="margin-left: 40px;"><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand  11.01.2005		Date of completion of this report  16.09.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer  Estrela y Calpe, J  Telephone No. +31 70 340-2689	



**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/GB2004/002610

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**Box No. I Basis of the report**

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1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

**Description, Pages**

1-21 as originally filed

**Claims, Numbers**

1-19 received on 10.06.2005 with letter of 10.06.2005

**Drawings, Sheets**

1/15-15/15 as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
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International application No.  
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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	1-19
	No: Claims	
Inventive step (IS)	Yes: Claims	1-19
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-19
	No: Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

1. Field of the invention: Stowable table for a vehicle, particularly for an aircraft seat of the first class type.
2. Prior Art: The document US-A-2 132 279 (FRY HARRY R ET AL) 4 October 1938 (1938-10-04), is considered to be the closest Prior Art and discloses (see figures 1 and 2; the reference numerals applying to this document) a stowable table (B) for a vehicle of the type where the table lower surface is arranged to face outwardly in the stowed position.
3. Objective Problem: Allow the use of the stowable table to a second passenger.
4. Solution: (see figures 1-3 of the present application) By the special technical features of claim 1; i.e.: The size of the stowable table is increased and the cantilever mechanical means holding the table on the back of a seat are such that they allow:
  - a vertical sliding of the table,
  - the rotation of the same about a horizontal, and
  - the lateral reciprocal movement of the table in the deployed position.
5. Therefore, **claim 1 and dependent claims 2-18**, meet the requirements of Articles 33 (2) and (3) PCT.

**Re Item VIII**

**Certain observations on the international application**

6. The subject matter of **claim 19** is defined by reference to the drawings which is not allowed by the PCT (see Rule 6.2 PCT). The claim does not define any clear structural features or limitations. Consequently, the scope of the claim is not clear (see Article 6 PCT) and a meaningful examination is not possible.

## CLAIMS

(97)

1. A stowable table for a vehicle, particularly an aircraft, said stowable table comprising:  
mounting means adapted to be fixedly secured to a supporting structure;  
table-top means comprising a table-top member;  
connecting means for connecting said table-top means to said mounting means, said connecting means comprising guiding means which are adapted to allow the table-top means to slide substantially vertically with respect to the mounting means when fitted between a first lower stowed position and a second upper deployed position, and to allow said table-top means to rotate about a substantially horizontal axis between a stowed upright orientation when in the first stowed position, and a substantially horizontal deployed orientation when in the deployed position;  
cantilevering means for cantilevering the table-top means from the mounting means in the upper deployed position such that the table-top means are capable of bearing loads in said deployed orientation, said cantilevering means comprising engaging means on said table-top means, and abutment means on said mounting means; said engaging means and abutment means being configured and arranged to engage one another when the table-top means are rotated to the deployed orientation in the deployed position; and said guiding means being further adapted to locate the table-top means in said upper position, such that said engaging means and abutment means engage one another stably when the table-top means are rotated to the deployed orientation,  
wherein said table-top means comprise means for connecting said table-top member to said guiding means and providing lateral reciprocal movement of said table-top member relative to said mounting means when said table-top means are disposed in said deployed position and orientation, said table-top connecting means comprising a ball spline connected to said guiding means and arranged to allow said table-top member to slide in a direction substantially parallel to said axis, and wherein said table-top connecting means further comprise a sub-frame that is connected to said ball spline, and means for slidably mounting said table-top member on said sub-frame so as to allow said table-top member to slide reciprocally relative to said sub-frame in a direction substantially parallel to said axis; said slidable mounting means comprising a plurality of spaced, substantially parallel

guide rails on one of said table-top member and said sub-frame, and linear bearings on the other of said sub-frame and said table-top member for bearing said guide rails

2. A stowable table as claimed in claim 1, wherein said engaging means comprise a plurality of formations on said table-top means and adapted to rotate therewith.

3. A stowable table as claimed in claim 2, wherein said abutment means comprise a plurality of corresponding abutment plates.

4. A stowable table as claimed in claim 2 or claim 3, wherein said table-top member and said formations are arranged such that when said table-top assembly is in the deployed orientation, said table-top member projects in a forwards direction from said horizontal axis, and said formations project generally forwardly from said axis and in a generally opposite, rearwards direction from said axis; said corresponding abutment means being disposed generally in front of and behind said axis, such that in the deployed position and orientation, said mounting means react on the table-top means through said abutment means at spaced positions on either side of side axis for cantilevering the table-top means;.

5. A stowable table as claimed in claim 4, wherein said table-top means comprise a rotatable shaft, said table-top member being connected to said shaft, and said shaft being disposed on said substantially horizontal axis; said formations being fixedly mounted on said shaft.

6. A stowable table as claimed in any preceding claim, wherein said guiding means comprise track means on said mounting means, and corresponding track-following means on said table-top means, which track-following means are constrained to slide along said track means for guiding the table-top means between said stowed and deployed positions.

7. A stowable table as claimed in claim 6, wherein said track means comprise two spaced, upright tracks, and said track-following means comprise two corresponding rollers on said table-top means.

8. A stowable table as claimed in claim 6 or claim 7, wherein said track-following means are positioned on said horizontal axis.

A stowable table as claimed in claim 6, claim 7, or claim 8, wherein said guide means further comprise means for controlling rotation of said table-top means, according to the position of said table-top means between the lower stowed position and the upper deployed position.

1) A stowable table as claimed in claim 9, wherein said rotation controlling means comprise shaped cam means on said mounting means and corresponding cam-following means on said table-top means; wherein said cam means and said cam-following means are configured and positioned relative to the track means and track-following means to position the table-top means in the stowed orientation when in the stowed position, and in the deployed orientation when in the deployed position.

1 A stowable table as claimed in claim 10, wherein said cam means are configured to cause progressively greater rotation of the table-top means about said horizontal axis from the stowed orientation to the deployed orientation as the table-top means moves from said lower stowed position to said upper deployed position.

2 A stowable table as claimed in claim 11, wherein said track following means are positioned on said horizontal axis, and said cam-following means are offset from said axis; said track means and cam means extend generally upwardly from respective lower ends to respective upper ends when fitted to said supporting structure, and said cam means diverge from the track means as they extend from their lower end to their upper end to cause progressively greater rotation of the cam-following means about said axis such as to cause said table-top to rotate from said stowed orientation to said deployed orientation as it moves from said stowed position to said deployed position.

13 A stowable table as claimed in any preceding claim, wherein said connecting means further comprise means for counter-balancing the weight of the table-top means as they move between said stowed and deployed positions.

14 A stowable table as claimed in claim 13, wherein said counter-balancing means comprise a constant force spring connected between the table-top means and the mounting means.

15 A stowable table as claimed in any preceding claim, wherein said guiding means further comprise two spaced racks on said mounting means, which racks extend substantially vertically when fitted to said supporting structure, and two corresponding, freely-rotatable pinions mounted on said table-top means on said horizontal axis in engagement with said racks, thereby to obtain smooth movement of the table-top means between said upper and lower positions.

16. A stowable table as claimed in any preceding claim, wherein said slidable mounting means comprises two guide rails, one guide rail being supported by two spaced bearings on said sub-frame or table-top member, and the other guide rail being supported by only one bearing, thereby to alleviate juddering when the table-top member slides relative to said sub-frame.

17. A stowable table as claimed in any preceding claim, wherein said table-top connecting means further comprise two pulleys, each of which is mounted to the table-top member for rotation about a pulley axis substantially orthogonal to the direction of sliding of said table-top member; and two cables, each of which is connected at one end to a respective end of the ball spline, extends around a respective one of said pulleys, and is connected at its other end to the table-top member, the arrangement being such that movement of the sub-frame on the ball spline causes corresponding movement of the table-top member in the same direction relative to the sub-frame.

18. A stowable table as claimed in any preceding claim, wherein said ball spline comprises a shaft and reciprocating nut adapted to travel along said shaft; said shaft being formed with a locating depression at a centre-point, and said nut comprising a spring-loaded follower that is adapted to enter said depression when the nut is position at said centre-point; said follower comprising an engaging member that is arranged normally to engage a corresponding abutment provided on said mounting means so as to prevent rotation of the table-top means from the deployed orientation to the stowed orientation, except when said nut is positioned at the centre-point where entry of the follower into the depression cause said engaging member to disengage from the abutment, thereby to allow said table-top means to be returned to the stowed orientation at the centre-point.

19. A stowable table substantially as hereinbefore described with reference to and as shown in FIGS. 1A, 1B, 1C, 2A and 2B or FIGS. 3 to 20 of the accompanying drawings.